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REMARKS

Applicants respectfully request reconsideration of the application.

Restriction

The Examiner has examined claims 1-4, 14-30 and 32-34, which includes elected species 4. Claims 5-13 and 31 have been withdrawn from consideration. Applicants respectfully traverse the restriction on the grounds that claim 31 should be examined along with claims 1-4, 14-30 and 32-34. Claim 31 shares some similarity with claim 4, and thus, should be examined for the same reason that claim 4 has been examined. Moreover, claim 31 has not been identified as being part of any patentably distinct species.

Specification

The publications cited in paragraph 5 of the Action are provided in the specification as examples and were not intended to provide essential information for enablement or best mode. Therefore, the incorporation of these publications is believed to be proper. If the Examiner maintains his objection to the incorporation of these publications, Applicants request an explanation of why the Examiner believes them to be essential.

The typographical errors in the specification that were identified in the Action have been corrected.

Abstract

The Abstract has been shortened.

Section 112 Rejection of Claims

Claims 2-4 have been rejected as being indefinite for having two references to "a media signal." After the above claim amendments, claims 2 and 4 have been rewritten in independent

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form, and claims 1 and 3 have been cancelled without prejudice. Claims 2 and 4 have been rewritten so as to avoid two references to "the media signal."

Prior Art Rejection of Claims

Claims 1-4 and 18-28 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,960,081 by Vynne et al. ("Vynne").

Claims 1-3, 14-15, 19-20, 22, 29-30 and 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,389,421 to Hawkins et al. ("Hawkins").

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins in view of U.S. Patent No. 6,374,336 to Peters et al. ("Peters").

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne in view of U.S. Patent No. 6,473,516 to Kawaguchi et al. ("Kawaguchi").

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,611,830 to Shinoda in view of Vynne.

Claim 2

Vynne fails to teach distributing prioritized segments to parallel processors as claimed. The Examiner contends that Vynne's selection of blocks based on visibility criteria is a form of prioritization. However, Vynne does not prioritize blocks based on the visibility criteria prior to distributing them to parallel processors. In fact, Vynne teaches that the embedding system 610 of Fig. 6.1 and Fig. 16 is executed on different processors, and the selection of blocks based on visibility criteria occurs after distribution to the processors. Vynne teaches that blocks are divided among different processors at col. 27, lines 6-17, but Vynne also teaches that the blocks are selected based on visibility criteria at col. 27, lines 44-47 after the distribution of the blocks to the processors.

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Hawkins fails to teach sub-dividing the media signal into segments for distribution to parallel processors as claimed. The Examiner has cited passages of Hawkins in cols. 9, 10 and 12, but none of these citations teaches the claimed sub-dividing and distributing of prioritized segments as claimed.

Claim 4

Vynne fails to teach: "the media signal segments are prioritized such that segments that are more likely to carry a readable watermark signal are given higher priority for the embedding operations" as set forth in claim 4. The cited passage in col. 8 relates to retrieving a watermark, not prioritizing segments for watermark embedding. The cited passage in col. 33 fails to suggest this aspect of claim 4 as well, and in contrast, merely suggest that a sub-set of blocks should be selected for embedding to enable subsequent embedding in the blocks that are not selected. This passage has nothing to do with prioritizing segments for embedding based on likelihood that those blocks will carry a readable watermark signal.

Claim 14

Hawkins fails to teach: "sub-dividing the media signal into segments...wherein the media signal is segmented into blocks based on a memory parameter of processing hardware."

Hawkins fails to teach sub-dividing the media signal into segments" for distribution of those segments to parallel processors as claimed. The passage cited in col. 10 of Hawkins relates to allocation of processing resources in a work scheduler based on cost. While Hawkins mentions that size of the data object may be considered in determining this cost, Hawkins fails to make any relationship between the size of the data object and any form of sub-dividing of a media signal into segments for distribution to parallel processors as claimed.

Claims 15-16

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Claim 15 is patentable over Hawkins for the same reasons as claim 14, and in addition, includes further elements that distinguish it from Hawkins. The cited passages fail to suggest the use of a memory unit used to swap data into system memory in a virtual memory system as a parameter for segmenting a media signal into blocks for distribution to parallel processors as claimed.

Regarding claim 16, Peters fails to teach the elements of claim 14 that are missing from Hawkins, and therefore, the combination of Peters and Hawkins does not teach all of the elements of claim 16, which depends from claim 14.

Claim 17

While Kawaguchi teaches embedding in certain bit planes, Kawaguchi does not teach: "wherein the media signal is segmented and prioritized based on bit planes." In fact, Kawaguchi teaches that the image is segmented into spatial regions based on a complexity threshold. Vynne also fails to teach this aspect of claim 17, and therefore, the combined teachings of Kawaguchi and Vynne fail to teach all of the elements of claim 17.

Claim 18

Vynne fails to teach: "the media signal is segmented and prioritized for parallel watermark decoding operations based on probability of watermark detection" as recited in claim 18. The cited passage in Vynne relates to generation of a binary random sequence (BRS), which is used to encode bits in selected blocks. The generation of the BRS and the dividing of the signature between blocks is unrelated to segmenting of the video into blocks in Vynne because the blocks are selected in a prior step without regard to the BRS. Therefore, the cited passage fails to teach or suggest this aspect of claim 18.

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Claim 19 is patentable for the same reasons as claim 18. Both Vynne and Hawkins fail to teach all of the elements of claim 19, which is not dependent on claim 18.

Claim 20

Claim 20 specifies that the watermark operations are performed by two or more watermark operation modules that perform a different watermark function, and the watermark operation modules operate in parallel such that a watermarking task for the media signal is distributed over the watermark operation modules performing different watermark functions on the media signal in parallel. Vynne fails to teach this aspect of claim 20 because each processing unit in Vynne's system performs the same embedding function in parallel. In other words, Vynne operates on different parts of video in parallel using the same watermarking function, but does not teach performing different watermarking functions on the different parts of the video in parallel.

Hawkins also fails to disclose this aspect of claim 20. As noted earlier, Hawkins does not teach sub-dividing a media signal for distribution to parallel processors as claimed, and further, does not teach performing different watermarking functions on the segments of the media signal in parallel as claimed.

Claim 22 is now dependent on claim 20 and is patentable for the same reasons as claim 20.

Claim 21

Claim 21 is further distinguishable over Vynne because it specifies the different watermark operation modules that operate in parallel. Vynne does not teach these different watermark operation modules operating in parallel as claimed. Vynne executes the same

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function in parallel across different processors, but does not teach watermark generator, a perceptual analyzer and a watermark applicator

Claim 23

Claim 23 corresponds to original claim 25, rewritten in independent form. The cited art fails to teach the claimed re-use of a perceptual mask to embed variable watermarks in copies of the media signal as claimed.

Dependent claims 24 and 26-28 are patentable over the cited art for the same reasons as claim 23.

Claim 29

Hawkins fails to teach: "a media signal pre-processor operable to receive a media signal and divide the media signal into segments for parallel watermark embedding operations" as claimed. The Examiner contends that "the media signal is divided based on jobs" in Hawkins. However, there is no teaching in Hawkins to divide a media signal into segments for parallel watermark embedding operations. There is no teaching that a job is created by dividing a media signal into segments. Hawkins refers to applying watermarks to requested images, but there is no teaching that the images are divided into segments to create a "job" or otherwise.

Claims 30-33

Claims 30-33 are patentable over Hawkins for the same reasons as claim 29. In addition, they include additional elements that further distinguish them from Hawkins. For example, Hawkins fails to teach prioritizing segments for embedding operations as set forth in claim 30, and Hawkins fails to prioritize segments for watermark embedding based on readability as set forth in claim 31.

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Claim 34

Shinoda fails to teach any form of a batch watermark registration and embedding system. The cited passage relates to dealing with one web page at a time. In contrast, the system of claim 34 recites a batch registration extractor, for example, for reading the registration database and creating an embedder control file, including identifiers, a corresponding list of media signal files and embedding instructions for controlling embedding of the identifiers in the media signal files. In other words, the system and the embedder control file facilitate handling identifiers for a corresponding list of media signal files. Shinoda's system does not teach this capability. Vynne does not teach the elements of claim 34 missing from Shinoda. Therefore, the combination fails to teach all of the elements of claim 34.

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Concluding Remarks

The claims are patentable over the cited art for the reasons provided above. Applicants are preparing an IDS for submission to the USPTO and request that the Examiner consider it before issuing another Action. Please call the undersigned if the IDS is not matched with the file before this response is being considered by the Office.

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Respectfully submitted,

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